

In affirming the citation, the judge seemed to indicate that the critical issue was whether drummy-sounding roof alone is sufficient to support a finding that ground is loose and inadequately supported within the meaning of section 57.3-22. 7 FMSHRC at 448-49. The judge relied in part on the testimony of Desai that "drummy sounding roof is evidence of either a physical separation in the roof strata or loosened adhesion between the strata resulting from the presence of carnallite or mud seams." 7 FMSHRC at 449. The judge determined that even using Amax's "definition of 'loose' as 'not rigidly fastened, or securely attached' or as 'loosely cemented ... material,'" the cited drummy roof was loose and required additional support. 7 FMSHRC at 449. Accordingly, the judge found a violation. He further concluded that the evidence was insufficient to establish a "significant and substantial" violation within the meaning of section 104(d)(1) of the Act, as no effort had been made by the MSHA inspector to bar down the area around the fracture. 7 FMSHRC at 450. <sup>4/</sup> The judge assessed a \$50.00 civil penalty.

We conclude that substantial evidence supports the judge's finding of a violation in this particular instance but, on the present record, we disavow any implication in the judge's decision that the presence of drummy-sounding roof (back) in a metal-nonmetal mine always signifies "loose" ground within the meaning of the standard.

Section 57.3-22 requires in pertinent part: "Loose ground shall be taken down or adequately supported before any other work is done." (Emphasis added). In light of the arguments advanced in this case, we emphasize at the outset that this standard does not provide that "drummy" ground be taken down or adequately supported but rather requires that "loose ground" be taken down or supported. "Loose ground" is not defined in the standard, and we therefore turn to the commonly accepted meanings of the term.

Both the Secretary and Amax note that "loose" is defined as "not rigidly fastened or securely attached." Webster's Third World New International Dictionary (Unabridged) 1335 (1966). The term "loose ground" has a specific meaning within the mining industry and is defined as "[b]roken, fragmented, or loosely cemented bedrock material that tends to slough from sidewalls into a borehole. ... As used by miners, rock that must be barred down to make an underground workplace safe...." DMRT 658. Accordingly, the term loose ground, as used in this standard, refers generally to material in the roof (back), face, or ribs that is not rigidly fastened or securely attached and thus presents some danger of falling.

While this definition is generally useful, the crux of the matter is how it is determined that ground is, in fact, loose within the meaning of section 57.3-22. As discussed in recognized texts, practical roof testing is not yet a precise science served by a sophisticated technology.

<sup>47</sup> The Secretary did not seek review of the judge's finding that the violation was not "significant and substantial."